TECHNICAL DATASHEET

Amorphous Calcium Aluminate

$C_{12}A_7$ - Cement Accelerator

CALUMEX® SC-A
AMORPHOUS CALCIUM ALUMINATE

- **Extremely Fast setting times**
- **Increased durability**
- **Amorphous Calcium Aluminate**
- **Rapid Alternative to Calumex XT-20**
- **High early strength development**
- **Increased density**
- **Shrinkage compensated**
- **Low dosage**

Calumex® SC-A is an Amorphous Calcium Aluminate ($C_{12}A_7$) additive to Ordinary Portlandcement, used to accelerate setting times, compensate shrinkage and increase both early and late strength development. Calumex® SC-A is the most reactive accelerator for Portlandcement systems. At a 10% replacement of OPC setting times can be reduced from several hours to less than 1 minute.

The specialized chemistry of Calumex® SC-A, as well as Calumex® XT-20, allows the formulation of ultra-fast setting formulations with extremely high early strengths at early stages of hydration. Furthermore, through the high formation of ettringite crystals, drying is accelerated and shrinkage and permeability are reduced.

As is the case with Calumex® XT-20, the basis of Calumex® SC-A is an amorphous clinker, making it a lot more reactive than crystalline alternatives. This means the required dosage in end formulations can be a lot lower. Between 5-20% of the binder weight should be replaced by Calumex® SC-A, depending on the desired effect.

Additional information

In order to optimize setting times, combine Calumex® SC-A with Delta-20 set retarder. Delta-20 is specifically formulated for application in ACA based systems. It will provide an extended workability, with minimal sacrifice of strength development. For formulations where extremely fast setting times are not desired, Calumex® XT-20 would be a more suitable alternative. Both Calumex® SC-A and Calumex® XT-20 are white in color and suitable to be mixed with White OPC.

Chemical Analysis

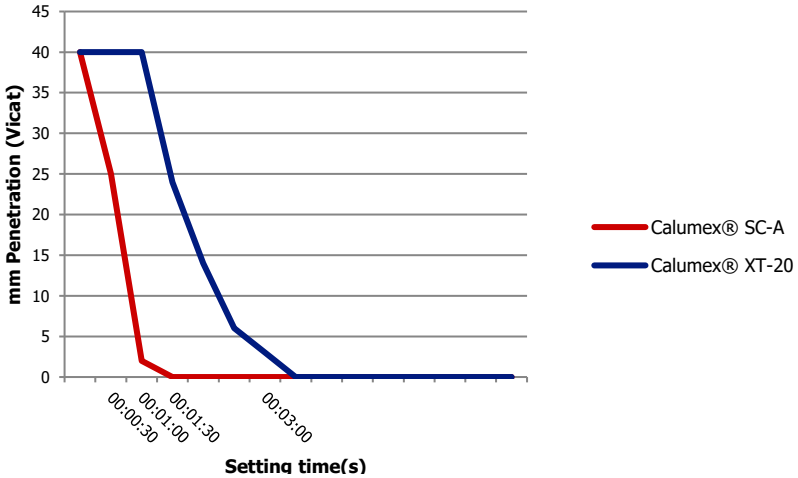
SiO_2	:	≤	3	%
Al_2O_3	:		20 – 25	%
Fe_2O_3	:	≤	0,5	%
CaO	:		40 – 45	%
SO_3	:	≤	30	%
TiO_2	:	≤	1	%
MgO	:	≤	1	%

Temperature development:	:	≥ 50°C	
Achieved after	:	≤ 10:00 min	

Physical composition

Appearance	:		White powder	
Blaine	:	~	6000	cm^2/g
Bulk density	:	~	2,9 – 3,1	g/cm^3

Comparing Setting times of Calumex® SC-A and Calumex® XT-20 (when mixed with OPC at a 1:9 ratio)



Compressive strength development (Mpa)

	Calumex® SC-A	Calumex® XT-20
6 hours	**≥ 8,5**	**~ 12**
24 hours	**≥ 38**	**~ 45**
72 hours	**≥ 48**	**~ 60**

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